PATENT COOPERATION TREATY

# **PCT**

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT 508024

Applica	ant's or agent's file reference PCT-55	FOR FURTHER ACTION SeeNotificationofTransmittalofInternational Preliminary Examination Report (Form PCT/IPEA/416)						
Interna	tional application No.	International filing date (day/month/year)	Priority date (day/month/year)					
	PCT/JP98/03962	03 September 1998 (03.09.1998)	08 September 1997 (08.09.1997)					
Interna	tional Patent Classification (IPC) o G01N 29/24, 29/22	r national classification and IPC						
Applica	ant	OSAKA GAS CO., LTD.						
1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.							
2.	This REPORT consists of a total of sheets, including this cover sheet.							
	This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).							
	These annexes consist of a	total of sheets.						
3.	This report contains indications re	elating to the following items:						
	Basis of the repor	rt .						

Date of submission of the demand	Date of completion of this report
12 February 1999 (12.02.1999)	16 June 1999 (16.06.1999)
Name and mailing address of the IPEA/JP Japanese Patent Office, 4-3 Kasumigaseki 3-chome Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer
Facsimile No.	Telephone No. (81-3) 3581 1101

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

VII

VIII

**Priority** 

Lack of unity of invention

Certain documents cited

Certain defects in the international application

Certain observations on the international application

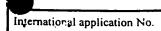
Translation

International application No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

# PCT/JP98/03962

I.	I. Basis of the report							
1.	1. With regard to the elements of the international application:*							
	$\boxtimes$	the international application as originally filed						
		the desc	cription:					
		pages	, as originally filed					
		pages	, filed with the demand					
		pages	, filed with the letter of					
		the clair	ms:					
		pages	, as originally filed					
		pages	, as amended (together with any statement under Article 19					
l		pages	, filed with the demand					
		pages	, filed with the letter of					
		the drav	·					
		pages	, as originally filed					
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		pages	, filed with the letter of					
		the seque	nce listing part of the description:					
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	the in Thes	the lan the lan the lan the lan or 55.3	to the language, all the elements marked above were available or furnished to this Authority in the language in which hal application was filed, unless otherwise indicated under this item. Its were available or furnished to this Authority in the following language which is: guage of a translation furnished for the purposes of international search (under Rule 23.1(b)). In guage of publication of the international application (under Rule 48.3(b)). In guage of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/s).  It any nucleotide and/or amino acid sequence disclosed in the international application, the international					
	preli	iminary e contair	red in the international application in written form.					
	Ħ		ned subsequently to this Authority in written form.					
	$\sqcap$		and subsequently to this Authority in computer readable form.					
		The st	tatement that the subsequently furnished written sequence listing does not go beyond the disclosure in the tional application as filed has been furnished.					
			atement that the information recorded in computer readable form is identical to the written sequence listing has armished.					
4	. 🗀	The an	the claims, Nos the drawings, sheets/fig					
5	. 🗀		port has been established as if (some of) the amendments had not been made, since they have been considered to go the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**					
•	in th		sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to tas "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16					
*	* Any	replacem	ent sheet containing such amendments must be referred to under item I and annexed to this report.					



#### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

Claims

PCT/JP98/03962

NO

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and exprenations supporting such statement								
1. Statement								
Novelty (N)	Claims	1-11	YES					
	Claims		NO NO					
Inventive step (IS)	Claims	3,5-11	YES					
	Claims	1,2,4	NO					
Industrial applicability (IA)	Claims	1-11	YES					

1-11

#### 2. Citations and explanations

#### Claims 1, 2 and 4

Document 1 [JP, 8-275944, A (Nihon Dempa Kogyo Co., Ltd.), 22 October, 1996 (22.10.96), full text, Figs. 1-3 (Family: none)] describes a focusing longitudinal wave ultrasonic probe provided with a matching material having an input end face in close contact with the concave surface of a curved piezoelectric element and an output end face adapted to the surface of a test piece, wherein the acoustic impedance of the matching material is matched with that of the test piece.

Document 2 [JP, 4-340464, A (Nissan Motor Co., Ltd.), 26 November, 1992 (26.11.92), full text, Figs 1-11 (Family: none)] describes that a polymer material as a test piece is ultrasonically inspected by an ultrasonic probe.

Document 3 [JP, 57-162591, A (Yokogawa Electric Corp.), 6 October, 1982 (06.10.82), claims, Figs. 3-4 (Family: none)] describes the use of a polymeric piezoelectric material as a piezoelectric element, and an ultrasonic probe, the matching material of which is matched with the piezoelectric element in acoustic impedance.

Since documents 1-3 are concerned with ultrasonic inspection, it is obvious to a person skilled in the art, to combine their technical matters.

## Claims 3 and 5-7

Documents 1, 2 and 3 respectively describe the above techniques, but neither describe nor suggest that the acoustic impedance of a matching material is matched with both the acoustic impedances of a piezoelectric element and a test piece.

### Claims 8-11

Document 4 [JP, 9-210971, A (Kubota Corp.), 15 August, 1997 (15.08.97), full text, Figs. 1-4 (Family: none)] is a document showing the general state of art in this technical field and describes a technique concerning flaw discrimination using two gates for detecting ultrasonic reflection echoes. However, it neither describes nor suggests the flaw evaluation of a polymer material, using a first gate for detecting the flaw echo of a fused wire section used as a predetermined reflection source and a second gate for detecting the flaw of a fusing section.